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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,156	06/19/2003	Hemant Chaskar	882.0004.U1(US)	5814

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EXAMINER	
DUONG, FRANK	

ART UNIT	PAPER NUMBER
2666	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/600,156	CHASKAR ET AL.	
	Examiner	Art Unit	
	Frank Duong	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is a response to communication dated 12/03/04. Claims 1-41 are pending in the application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Malki et al (Low Latency Handoff in Mobile IPv4, Internet Draft, pages 1-65, May 2001) (hereinafter "Malki").

Regarding **claim 1**, in accordance with Malki reference entirety, Malki explicitly and inherently discloses a method to perform a low latency inter-technology handoff of a mobile node (MN) from a wireless local area network (WLAN) to a cellular network (*page 9, first paragraph, lines 3-4*), comprising:

transmitting a Bearer Context message from the MN for use by the cellular network, the Bearer Context message comprising information for use in establishing at least one access bearer with the cellular network for an ongoing packet data session of the MN (*page 14, Figure 1; messages 1a and 1b and the description pertaining Router Advertisement described thereat or page 20 and the description pertaining "identifier"*) ; and

responding to the receipt of the Bearer Context message with a Router Advertisement message that is forwarded towards the MN (*page 14, Figure 1; messages 2a and 2b*).

Regarding **claim 2**, in addition to features recited in base claim 1 (see rationales discussed above), Malki further discloses where the Bearer Context message is piggybacked on another message (*page 23, first paragraph*).

Regarding **claim 3**, in addition to features recited in base claim 1 (see rationales discussed above), Malki further discloses where the Bearer Context message comprises information expressive of a QOS requirement of an ongoing application or applications of the MN (*page 63, second paragraph*).

Regarding **claim 4**, in addition to features recited in base claim 1 (see rationales discussed above), Malki further discloses where the Bearer Context message comprises information expressive of a unique identity of the MN that is recognizable by the cellular network (*page 20 and the description pertaining "identifier"*).

Regarding **claim 5**, in addition to features recited in base claim 1 (see rationales discussed above), Malki further discloses, where the Bearer Context message comprises information expressive of parameters to facilitate the creation of a Point-to-point Protocol state in the cellular network (page 20 and the description pertaining "identifier").

Regarding **claim 6**, in addition to features recited in base claim 1 (see rationales discussed above), Malki further discloses where the Bearer Context

message comprises information expressive of parameters to enable establishment of packet filters in the cellular network (*page 20 and the description pertaining "identifier"*).

Regarding **claim 7**, in addition to features recited in base claim 1 (see rationales discussed above), Malki further discloses, where the Bearer Context message is piggybacked on a Router Solicitation message that is sent from an access router (AR) in response to receiving a Proxy Solicitation Request message from the MN (page 23, first paragraph).

Regarding **claim 8**, in addition to features recited in base claim 7 (see rationales discussed above), Malki further discloses where the Router Advertisement is sent to the AR, which in response sends a Proxy Router Advertisement to the MN (page 23, first paragraph).

Regarding **claim 9**, in addition to features recited in base claim 8 (see rationales discussed above), Malki further discloses where the Router Advertisement comprises a challenge for authentication and authorization purposes (page 27, section 3.9).

Regarding **claim 10**, in addition to features recited in base claim 8 (see rationales discussed above), Malki further discloses where the MN responds to the Proxy Router Advertisement by sending a Registration Request message to the cellular network (page 18, Figure 4; "HA Reg." message from MN to nFA).

Regarding **claim 11**, in addition to features recited in base claim 10 (see rationales discussed above), Malki further discloses where the Proxy Router

Advertisement comprises a challenge for authentication and authorization purposes, and where the Registration Request message comprises information for identifying a home Authentication, Authorization, Accounting (AAA) function of the MN in the cellular network, and a response to the challenge received in the Proxy Router Advertisement (page 27, section 3.9).

Regarding **claim 12**, in addition to features recited in base claim 11 (see rationales discussed above), Malki further discloses where, in response to receiving the Registration Request message, a query is sent to the home AAA of the MN (pages 51-52, section 9.1).

Regarding **claim 13**, in addition to features recited in base claim 12 (see rationales discussed above), Malki further discloses where the query is sent via a visited AAA either directly or via at least one intermediate broker A.hA (pages 51-52, section 9.1).

Regarding **claim 14**, in addition to features recited in base claim 12 (see rationales discussed above), Malki further discloses where the query sent to the home AAA comprises information that indicates the challenge sent to the MN, and the response to the challenge received from the MN, for use by the home AAA in authenticating the MN (pages 51-52, section 9.1).

Regarding **claim 15**, in addition to features recited in base claim 14 (see rationales discussed above), Malki further discloses where the query sent to the home AAA comprises information that indicates the access service requested by the MN (pages 51-52, section 9.1).

Regarding **claim 16**, in addition to features recited in base claim 14 (see rationales discussed above), Malki further discloses in response to successfully authenticating the MN, sending a success indication from the home AAA for authorizing access by the MN (pages 51-52, section 9.1).

Regarding **claim 17**, in addition to features recited in base claim 16 (see rationales discussed above), Malki further discloses where the success indication further comprises a ticket sent in clear text and in a form encrypted using a shared secret between the home AAA and the MN (pages 51-52, section 9.1).

Regarding **claim 18**, in addition to features recited in base claim 17 (see rationales discussed above), Malki further discloses where the clear text form of the ticket is stored in a cellular network node and where the encrypted ticket is sent to the MN via the AR (pages 51-52, section 9.1).

Regarding **claim 19**, in addition to features recited in base claim 18 (see rationales discussed above), Malki further discloses sending an acknowledgement (ACK) from the MN to the cellular network, the ACK comprising the clear text ticket (pages 51-52, section 9.1).

Regarding **claim 20**, in addition to features recited in base claim 19 (see rationales discussed above), Malki further discloses in response to receiving the clear text ticket from the MN, further comprising performing access bearer setup in the cellular network for establishing at least one access bearer for the MN (page 20, second paragraph).

Regarding **claim 21**, in addition to features recited in base claim 20 (see

rationales discussed above), Malki further discloses further in response to receiving the clear text ticket from the MN, registering the MN with the HA and, upon receiving a Registration Reply from the HA, forwarding the Registration Reply from the cellular network to the MN upon an established address bearer (page 20, Figure 4; "Reg Reply" message).

Regarding **claim 22**, in addition to features recited in base claim 17 (see rationales discussed above), Malki further discloses generating a session key at the home AAA as clear text and in an encrypted form, using the shared secret between the MN and the home AAA, storing the clear text session key in a cellular network node, and forwarding the encrypted form of the session key to the MN for use by the MN in at least one of authenticating and encrypting future message transactions with the cellular network (pages 51-52, section 9.1).

Regarding **claim 23**, in addition to features recited in base claim 1 (see rationales discussed above), Malki further discloses where the Bearer Context is sent by the MN in an encrypted form using a shared secret between the MN and a home Authentication, Authorization, Accounting (AAA) function of the MN in the cellular network (pages 51-52, section 9.1).

Regarding **claim 24**, in addition to features recited in base claim 1 (see rationales discussed above), Malki further discloses where communication between the MN and the cellular network comprises a HVHACK (Handover initiate/Handover ACK) message exchange, and where the Bearer Context message is piggybacked on the HI message (page 23, section 3.4.3).

Regarding **claim 25**, in addition to features recited in base claim 24 (see rationales discussed above), Malki further discloses where the cellular network responds to a receipt of the Bearer Context message with a Mobile Node-Foreign Agent (MN-FA) challenge extension that is piggybacked on the HACK message (page 23, section 3.4.3).

Regarding **claim 26**, in addition to features recited in base claim 1 (see rationales discussed above), Malki further discloses where the MN transmits the Bearer Context message in response to a change in at least one of WLAN-related signal strength, signal quality and other information, such as geographical coverage information (page 45; "LLA").

Regarding **claim 27**, in accordance with Malki reference entirety, Malki discloses a data communications system (Figure 1) comprising a mobile node (MN), a wireless local area network (WLAN) (oFA o r nFA) and a cellular network (oFA or nFA) (page 9, first paragraph), further comprising:

a transmitter for transmitting a Bearer Context message from the MN to the cellular network, the Bearer Context message comprising information for use in establishing access bearers in the cellular network for an ongoing packet data session of the MN (page 14, Figure 1; messages 1a and 1b and the description pertaining Router Advertisement described thereat or page 20 and the description pertaining "identifier"); and

responding to the receipt of the Bearer Context message with a Router Advertisement message that is forwarded towards the MN (page 14, Figure 1;

messages 2a and 2b).

Regarding **claim 28**, in addition to features recited in base claim 27 (see rationales discussed above), Malki further discloses where the Bearer Context message is piggybacked on another message (page 23, first paragraph).

Regarding **claim 29**, in addition to features recited in base claim 28 (see rationales discussed above), Malki further discloses where the Bearer Context message is piggybacked on a Router Solicitation message that is sent from an access router (AR) in response to receiving a Proxy Solicitation Request message from the MN (page 23, first paragraph).

Regarding **claim 30**, in addition to features recited in base claim 28 (see rationales discussed above), Malki further discloses where communication between the MN and the cellular network comprises a HFHACK (Handover initiate/Handover ACK) message exchange, where the Bearer Context message is piggybacked on a HI message, and where the cellular network responds to a receipt of the Bearer Context message with a Mobile Node-Foreign Agent (MN-FA) challenge extension that is piggybacked on a HACK message (page 23, section 3.4.3).

Regarding **claim 31**, in addition to features recited in base claim 27 (see rationales discussed above), Malki further discloses where the Bearer Context message comprises information expressive of at least one of a QOS requirement of at least one ongoing application of the MN, a unique identity of the MN that is recognizable by the cellular network, parameters to facilitate the creation of a Point-to-point Protocol state in the cellular network, and parameters to enable establishment of

packet filters in the cellular network (page 23, section 3.4.3).

Regarding **claim 32**, in addition to features recited in base claim 27 (see rationales discussed above), Malki further discloses where the Bearer Context message is received by a Packet Data Support Node (PDSN) (page 14, Figure 1; oFA).

Regarding **claim 33**, in accordance with Malki reference entirety, Malki discloses a computer program for controlling operation of a mobile node (MN) that is operable with either a wireless local area network (WLAN) or a cellular network, said computer program being responsive to a change in at least one of received WLAN signal strength and signal quality for transmitting a Bearer Context message from the MN to the cellular network, the Bearer Context message comprising information for use in establishing at least one access bearer in the cellular network for an ongoing packet data session of the MN (pages 14-16 and Figure 1).

Regarding **claim 34**, in addition to features recited in base claim 33 (see rationales discussed above), Malki further discloses where the Bearer Context message is piggybacked on another message (page 23, first paragraph).

Regarding **claim 35**, in addition to features recited in base claim 34 (see rationales discussed above), Malki further discloses where the Bearer Context message is piggybacked on a Router Solicitation message that is sent from an access router (AR) in response to receiving a Proxy Solicitation Request message from the MN (page 23, first paragraph).

Regarding **claim 36**, in addition to features recited in base claim 34 (see

rationales discussed above), Malki further discloses where communication between the MN and the cellular network comprises a HVHACK (Handover Initiate handover ACK) message exchange, where the Bearer Context message is piggybacked on a HI message, and where the cellular network responds to a receipt of the Bearer Context message with a Mobile Node-Foreign Agent (MN- FA) challenge extension that is piggybacked on a HACK message (page 23, first paragraph).

Regarding **claim 37**, in addition to features recited in base claim 34 (see rationales discussed above), Malki further discloses where the Bearer Context message comprises information expressive of at least one of a QOS requirement of at least one ongoing application of the MN, a unique identity of the MN that is recognizable by the cellular network, parameters to facilitate the creation of a Point-to-point Protocol state in the cellular network, and parameters to enable establishment of packet filters in the cellular network (page 23, first paragraph and page 63, last paragraph).

Regarding **claim 38**, in accordance with Malki reference entirety, Malki discloses a computer program for controlling operation of a network node of a cellular network, said computer program being responsive to a receipt of a Bearer Context message from a mobile node (MN) that is currently wirelessly coupled to a wireless local area network (WLAN) for initiating the establishment of a cellular network access bearer for the MN, the Bearer Context message comprising information for use in establishing the at least one access bearer in the cellular network for an ongoing packet data session of the MN (pages 14-16 and Figure 1).

Regarding **claim 39**, in addition to features recited in base claim 38 (see rationales discussed above), Malki further discloses where the cellular network node comprises a packet data support node (PDSN) (page 14, Figure 14; oFA).

Regarding **claim 40**, in addition to features recited in base claim 39 (see rationales discussed above), Malki further discloses where the cellular network comprises a cdma2000 cellular network (page 9, first paragraph).

Regarding claim 41, in addition to features recited in base claim 38 (see rationales discussed above), Malki further discloses where said cellular network node responds to the receipt of the Context Bearer message by sending a Router Advertisement message that comprises a Mobile Node-Foreign Agent challenge extension message towards the MN (page 23, first paragraph).

Response to Arguments

3. Applicant's arguments filed 12/03/04 have been fully considered but they are not persuasive.

In the Remarks of the outstanding response filed 12/03/04, on page 12, pertaining the rejection under 35 U.S.C. 102(b) as being anticipated by Malki, Applicants argue "*The use of Router Advertisement solicitation and reply messages in the Pre-Registration related disclosure of Malki et al. quoted above clearly does not expressly disclose or suggest the claimed subject matter. In fact, there is no express disclosure of "Bearer Context message" in Malki et al., or any disclosure of a message having a purpose and functionality of the Bearer Context message.*"

In response Examiner respectfully disagrees and asserts the Malki reference, as clearly pointed out in the Office Action, does anticipate the claimed limitations in the present condition. There is no doubt that Malki et al. reference teach the notorious "vertical handoff" or "inter-tech handoff" as disclosed and claimed in the instant application. The only disputed matter is the claimed "Bearer Context message" to whether Malki et al. discloses or not. Let's revisit Malki et al. reference. On page 20, pertaining the Router Advertisement solicitation and reply messages, Malki et al. clearly states "solicitation MUST have an extension containing an IP address identifier because MN is soliciting a specific FA's advertisement from the oFA. This specific FA is the one which be its nFA. The IP address identifier that can be used by the oFA to resolve to nFA's IP address or an identifier that can be used by the oFA to resolve to nFA's IP address. If the identifier is not an IP address, it may be specific to the underlying wireless technology, for example, an Access Point or Base Station ID". Moreover, low latency handoffs for Multiply-Interaced MNs (WLAN and cellular) is clearly discussed on pages 63-64. Since there is neither specific definition for disputed term "*Bearer Context message*" in the claim nor the specification of the instant application, Examiner, under strict guidelines of MPEP, has given it a broadest reasonable interpretation consistent with the specification. In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). The claimed "Bearer Context message" is corresponding to the Malki et al's disclosure of "identifier" in the solicitation message, as clearly pointed out in the Office Action.

In the Remarks, on page 13, pertaining the rejection of claim 2, Applicants argue the Malki et al. reference fails to anticipate the limitation of "*the Bearer Context message is piggybacked on another message*".

In response Examiner respectfully disagrees and asserts the Office Action has clearly pointed out the claimed limitation.

As for the argument Malki et al. reference fails to disclose "QoS" as argued on page 13 of the Remarks, Examiner respectfully disagrees and asserts the cited portion implicitly and inherently teaches the disputed limitation. To this day there is no unified standard for Quality of Service (QoS). Different technologies or protocols have their own QoS to include precedence/tos/flow in TCP/IP; CBR, VBR, ABR and UBR in ATM; data rate, error in cellular. The QoS is definitely contemplated by the author of the reference; especially dealing with handing off between inter-technology (WLAN and cellular) to honor the subscribers' service level agreement or paid subscription, but dealing with QoS is beyond the scope of the reference.

Should the Applicants further amend the disputed term to overcome the applied art in a response to this Office Action, Examiner reserves the right to applied the references listed below dealing with inter-tech handoff.

Examiner believes an earnest attempt has been made in addressing all of the Applicants' arguments. Due to the arguments are not persuasive and the response filed 12/03/04 fails to place the application in a favorable condition for allowance, the rejection is maintained.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Frid et al. (USP 6,137,791).

Karagiannis, Mobility Support for Ubiquitous Internet Access, ERICSSON, pages 1-70, 2000.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Duong whose telephone number is 571-272-3164. The examiner can normally be reached on 7:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frank Duong
Primary Examiner
Art Unit 2666

May 11, 2005